UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,673	08/31/2001	Glen Salmon	3330/55	1256

29858	7590	12/02/2004

BROWN, RAYSMAN, MILLSTEIN, FELDER & STEINER LLP
900 THIRD AVENUE
NEW YORK, NY 10022

EXAMINER
WU, QING YUAN

ART UNIT	PAPER NUMBER
2126	

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2002*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
       application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-22 are pending in the application.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming
> the subject matter which the applicant regards as his invention.

3.   Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

      a.   The following terms lacks antecedent basis:

          i.   The connector- claims 3-5.

          ii.   The thread requirements- claim 4, line 3.

          iii.   The thread-dependent connector- claim 7, line 1.

          iv.   The connector application program interface- claim 19, lines 2-3.

      b.   The following claim language is indefinite:

          i.   As per claim 1, lines 15-17, it is uncertain whether "a thread-dependent

connection" refers to "a thread-dependent connection" in lines 2-3, and whether

"the application" in line 7 refers to "a multi-threaded application" in line 1 (i.e. if

they are the same then "said" or "the" should be used and "said thread-dependent

connection " must be used throughout all the claims, in addition applicant needs to

use consistent language to properly refer to the antecedent).

ii.   As per claim 11, line 8, it is uncertain whether "the connector" refers to "a

thread-dependent connector" (i.e. if they are the same applicant needs to use

consistent language to properly refer to the antecedent).

iii.   As per claims 14-16, it is uncertain whether "a single internal thread"

refers to "a single internal thread" in claim 11, line 8 (i.e. if they are the same then

"said" or "the" should be used and "said single internal thread " must be used

throughout all the claims).

iv.   As per claim 19, lines 4-5, it is uncertain whether "the internal thread"

refers to "a single internal thread" in claim 11, line 8 (i.e. if they are the same

applicant needs to use consistent language to properly refer to the antecedent).

v.   As per claim 20, it is uncertain whether "a multi-threaded application"

refers to "a multi-threaded application" in claim 11, line 2 (i.e. if they are the

same then "said" or "the" should be used and "said multi-threaded application "

must be used throughout all the claims).

4.   The rejections above are examples of numerous errors that recurred throughout various

claims. There are too many errors to list independently. Applicant should consider fixing all

these errors in the amendment.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al

(hereafter Hunt) (U.S. Patent 6,801,919).

7.   As to claim 1, Hunt teaches the invention substantially as claimed including a method for

interfacing between a multi-threaded application and a restrictive back-end processing system,

wherein the back-end processing system requires a thread-dependent connection where a

relationship between a connection and an application thread is maintained [col. 1, lines 35-39;

col. 3, lines 29-48; Fig. 3], the method comprising:

        maintaining a single thread to link to the detected thread-dependent connection [col. 1,

lines 59-63; col. 2, line 8; col. 6, lines 39-43; col. 7, lines 31-35];

        correlating multiple threads from the application with the maintained single thread,

thereby allowing operations requested by the application over the multiple threads to be

performed on the back-end processing system through the thread-dependent connection [col. 1,

line 67 to col. 2, line 8; col. 2, lines 5-8, lines 29-33; col. 8, lines 17-27; 925-990, Fig. 9].

        Hunt does not specifically teach detecting a thread-dependent connection in the back-end

processing system. However, Hunt disclosed an application requesting connection, establishing

connection, accessing, and communication with a database [450, Fig. 4; 1040, 1050, Fig. 10; col.

5, line 60 to col. 6, line 1].

8.   It would have been obvious to one of an ordinary skill in the art at the time the invention

was made, to have recognized that detection have to occur at the database when a connection is

requested from an application and an acknowledgement is made to establish the connection.

9.   As to claim 2, this claim is rejected for the same reason as claim 1 above.

10.   As to claim 3, this claim is rejected for the same reason as claim 1 above. In addition,

Hunt does not specifically teach allocating memory for connection instances. However, Hunt

disclosed the database interface entities as an aggregate resource and the entities are use to

satisfy a database interaction [col. 4, lines 12-15] and releasing of resource when interaction are

completed [col. 6, lines 29-30; col. 7, lines 14-15; col. 8, lines 12-14]. It would have been

obvious to one of an ordinary skill in the art at the time the invention was made, to have

recognized that the resource are allocated for connection instances when interaction was

initialized in order for it to be release when interaction are completed.

11.   As to claims 4-5, this claim is rejected for the same reason as claim 1 above. In addition,

Hunt does not specifically teach reading a header data structure. However, Hunt disclosed a

connection management layer that can be used in a single or multi-threaded environment [col. 3,

lines 63-64]. It would have been obvious to one of an ordinary skill in the art at the time the

invention was made, to have recognized the different abilities of different connectors in various

back-end systems and include various types of interaction between the application and the

database as detection for a thread-dependent connection.

12.   As to claim 6, this claim is rejected for the same reason as claim 1 above.

13.   As to claim 7, this claim is rejected for the same reason as claim 1 above. In addition,

Hunt teaches generating a plurality of simultaneous connections comprising a second thread-

dependent connection, a second single thread [col. 4, lines 18-32].

14.   As to claim 8, this claim is rejected for the same reason as claim 1 above.

15.   As to claim 9, Hunt teaches the invention substantially as claimed including wherein

correlating multiple threads from the application comprises generating a thread support object to

support the relationships between the multiple threads and the maintained single thread [col.1,

lines 63-66; col. 2, lines 5-8, line 21; col. 4, lines 2-6; 510, Figs. 7-9]. Hunt does not specifically

teach using the thread support object to toggle execution of an operation between one of the

multiple threads and the maintained single thread. However, Hunt disclosed that the creation of

the database query statement through the release statement from the database query object to the

database connection object may occur multiple times and the begin transaction message to the

end transaction message can be repeated multiple times per each of a plethora of tasks [col. 8,

lines 17-27]. It would have been obvious to one of an ordinary skill in the art at the time the

invention was made, to have recognized that each occurrence (i.e. single access to the

connection) represents an execution of only one of the plurality of threads using the initial

connection created by the first thread.

16.   As to claim 10, this claim is rejected for the same reason as claim 9 above. In addition,

Hunt does not specifically teach semaphores. However, it is well known in the art to use

semaphores to restrict access to a share resource in a in a multiprocessing environment.

17.   As to claim 11, Hunt teaches the invention substantially as claimed including a thread

consistency support system for providing thread consistency between a multi-threaded

application and a thread-dependent connector allocated in a restrictive back-end system, wherein

the thread-dependent connector only supports a single thread to link to that connector for

operations on that connector and wherein the multi-threaded application creates multiple threads

that attempt to access the connector [Fig. 2; col. 1, lines 32-39], the system comprising:

an arbiter layer positioned between the application and the thread-dependent connector

[col. 3, 32-34], the arbiter layer being configured to receive multiple threads from the application

and to produce a single internal thread from the arbiter layer to the connector upon which

operations of the multiple threads are performed [307, Fig. 7; col. 2, lines 5-8].

18.   As to claims 12-20, these are system claims for performing method claims 1-10; therefore

they are rejected for the same reason as claims 1-10 above.

19.   As to claim 22, this claim is rejected for the same reason as claims 1-2 above.   In

addition, receiving multiple application threads from the connector application program

Interface [307, 650, Fig. 6; col. 4, lines 37-43].

20.   As to claim 21, this is a thread consistency support system claim that correspond to

method claim 22, therefore it is rejected for the same reason as claim 22 above

21.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Qing-Yuan Wu whose telephone number is (571) 272-3776. The

examiner can normally be reached on 8:30am-5:00pm.
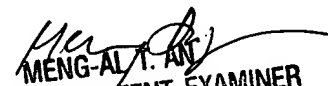
        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

        Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

                                                    Qing-Yuan Wu

                                                    Examiner

                                                    Art Unit 2126

MENG-AI T. AN
SUPERVISORY PATENT EXAMINER
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